IFW 3617

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	)		
	:	Examiner:	Frantz F. Jules
JAN H. ZICHA	)		
	:	Art Unit:	3617
Application No.: 10/050,937	)		
	:		
Filling Date: January 22, 2002	)		
	:		
For: INTERNALLY RESILIENT TIE FOR RAILWAY TRACK	)	July 28, 2004	
	:		

Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

RE-SUBMISSION OF DOCUMENTS

Sir:

Enclosed are the following documents:

Submittal Letter dated April 11, 2003 signed in response to Office Action dated May 30, 2004.

Copy of Petition for Extension of Time Under 37 Cfr 1.136(A) dated June 29, 2004.

Supplemental Declaration for Utility or Design Patent Application requested by Office Action dated January 12, 2003.

Acceptance of these documents is respectfully requested.

The applicant may be reached at (301) 322 5233 or (240) 383 0579. All Correspondence should be directed to the applicant's below-listed address.

Respectfully submitted,

Jan H. Zicha

Jan H. Zicha
Applicant

Applicant's Address: 7414 Lake Glen Drive, Glenn Dale, Maryland 20706

Mr. Frantz F. Jules

Examiner

United States Patent and Trademark Office

Washington DC 20231

Date: April 11, 2003

Subject: Application No. 10/050,937, Internally Resilient Tie for Railway Track

Dear Mr. Jules,

Enclosed are corrected Specification, Drawings and Supplemental Declaration of the patent application No. 10/050,937 in reply to Office Action dated January 12, 2003.

The deficiencies described on pages 2 thru 11, top page, of your correspondence dated January 2003 have been corrected and supplemental information included in the revised version. The functional aspects of the invention were moved to the Background and Brief Description of Invention sections of the application. The dynamic aspects of mechanical action of the internally resilient tie mentioned in the original application are expanded in its enclosed revision because they are essential to the invention and constitute essential improvement over the present state of art. The revised text of application is restricted to ballasted track because its ballastless form constitutes prior art.

The deficiencies listed on pages 2 through 11 top of your correspondence dated January 12, 2003, have been corrected. The statements concerning the rejections based on stated

instances of non-compliance with the law 35 USC $ 103 and the rule M.P.E.P Section 2142 are opposed on the following grounds:

1. The invention possesses improved properties "not expected by prior art" in compliance with M.P.E.P. Section 2142. While similarly looking devices that incorporate blocks inside ties were patented previously, they were intended to add only constant and static elasticity to the track supporting system. In order to make these devices usable in a contemporary ballasted track, they must reflect dynamic properties of track/train interaction and be adjustable to compensate for variations within the subgrade and subsoils of the track as described in the revised Background of the Invention. Proper dimensioning and selection of materials for internally resilient ties to be used successfully in ballasted track require advanced design process that is not a part of prior art and is not obvious to one of ordinary skill in the art. As evidence, the report DTFR 53-00-P-00377, Ugrading Track and Roadbed for High Speed Rail Operations, authored by myself, submitted to Federal Railroad Administration on January 30, 2001, after the original submittal of application for provisional patent titled Resilient Ties for Railway Track, is enclosed in electronic form on a CD disk. This report is currently under review at Voelpe Center and has not been published to date. The report includes theory and examples of analyses descriptive of the general dynamic theory of railway track and its relevant special applications, none of which has been developed as a part of work on the referred federally sponsored research report but existed previously.

2. Patentability over Sonneville and Vanohacker

Sonneville's Low Vibration Track is properly dynamically designed. It has several times higher longevity than any other type of track and requires very little maintenance. However, it is restricted to ballastless track while it is never used and cannot be used in a ballasted track as described in the revised Background of the Invention. Vanohacker's rail fastener is very different, does not introduce the desirable mass of sufficient magnitude into the dynamic track train interaction diagram which is depicted in added Fig.6, and closely resembles previous fasteners broadly utilized in ballastless track applications in Holland, Germany, Austria, Czech Republic, and Philadelphia in the USA for last four decades. Installations of Vanohacker's fasteners in ballasted track are unknown. Experience with these fasteners, and the demands of contemporary railway operations reflected in specifications of successful railroads, such as specifications of Euro-Tunnel, 1989, indicate that the elastomer utilized by Vanohacker would be either too soft to endure high frequency vibrations that reduce longevity of such elastomers in a railway track, or too stiff to significantly reduce the spread of low frequency vibrations that are damaging to the track and that are also environmentally objectionable. Dampening of this kind of devices is usually negligible in comparison with the extraordinary dampening capacity of Sonneville's LVT system which is a key parameter responsible for the LVT's success. In a contrary, intense maintenance of fasteners similar to the one of Vanohacker is a daily occurrence inherent to prior art. It is not clear how a mixture of these two dissimilar devices would make the concept of internally resilient ties obvious.

3. Mc Calum's device is interesting from its historical point of view. However, its block is too small to offer sufficient reduction of kinetic energy before it reaches its vertical elastic components while no lateral resilience exists. In the absence of a stiff railpad, its elastic members will be likely destroyed by high frequency vibrations from contemporary trains. Lateral dynamic activities will wear the vertical interfaces in a short time so that gauge of the rail would not be maintainable. The similarity and intended purpose of Mc Calum's device are far remote to the ones of internally resilient ties. Mc Calum's device is unique and never seen in railroad practice. It is hardly known to "one of ordinary skill in the art" to view it in a connection with Sonneville's and Vonahacker's devices to make the concept of internally resilient ties obvious.

4. J. McCourt's device includes wooden blocks that are too small and light to make a difference in the dynamic track/train interaction diagram. The blocks cannot be enlarged due to the utilized round rail fasteners that also restrict the movement of blocks that is needed for absorption of kinetic energy of vibrations should this device was dynamically loaded by contemporary trains. In the absence of an elastomeric rail pad, this device offers mere substitution of rail pads by wooden blocks. It is apparently a long time forgotten predecessor of standard rail pads. Its similarity and intended purpose are far remote to the ones of internally resilient ties. J. McCourt's device is unique and never seen in railroad practice. It is hardly

known to "one of ordinary skill in the art" to view it in a connection with Sonneville's LVT track to make the concept of internally resilient ties obvious.

5. The construction of a new high speed rail line in Germany between Frankfurt and Koln am Rein, as well as upgrades of existing lines for high speed operations worldwide involve costly replacements of soils in ten to fifteen feet depths, or construction of embankments in otherwise good quality soil areas to ensure dynamic uniformity of the subgrade and subsoils of the track foundation wherever the underlaying soils vary. Attempts to achieve uniformity of the overall dynamic response of ballasted track at rail pads have been made and did not work. Should the concept of internally resilient ties was obvious, it would be already in use saving time and capital investment costs on high speed rail projects.

Sincerely Yours,

Jan H. Zicha

Jan H. Zicha, P.E.